UHV CLEANING PROCEDURES 01/13/04
LBNL UHV CLEANING FACILITY

This document describes the cleaning procedures in use at the LBNL cleaning facility, as per Al Harcourt, LBNL Cleaning Facility manager. This document has been edited from its original form to describe those procedures to be used specifically for KamLAND parts, samples, and assemblies.

1. Application: Quality and Safety Requirements to be used for the cleaning of ultra high vacuum parts.

2. General requirements for all parts and assemblies:

    A. For service in a UHV environment, extreme care must be taken to avoid surface contamination of finished parts and assemblies. Avoid using any contaminating materials that cannot be cleaned using conventional procedures, also avoid contact with parts, tools, or surface that may result in contamination.
    B. The fabricator must notify an LBNL manager if there are any questionable materials that might cause UHV contamination problems, as special cleaning procedures may be needed.
    C. After final cleaning, handle parts with clean, lint-free gloves, or cloth from that point on to prevent contamination from fingerprints. Avoid contact with any parts or tools that are not similarly cleaned for UHV.
    D. After cleaning, wrap or cover individual parts with new, clean lint-free paper and organic aluminum foil, and store parts in a clean, contamination-free environment.

3. Cleaning of parts:

    A. Pre-clean, degrease using Blue Gold Everclean (soap) or equivalent 50% with water at 130° F in the ultrasonic tanks until oil free 5 to 20 minutes.
    B. Rinse in deionized water.
    C. Soak in Wyandotte Diversey 909 or equivalent at 145° F for 15 minutes. Scrub parts as necessary.
    D. Repeat soak in Diversey 909 as necessary. Typically parts will be soaked 2 – 3 times in the 909 cleaner.
    E. Immerse or spray rinse in room temperature tap water until sheeting occurs.
    F. Immerse or spray rinse in room temperature deionized water 1- 2 times.
    G. Immerse or spray rinse in hot 150 to 160 deionized water for 2 minutes. Maintain a resistivity of 1 x 10e6 Ohm-cm.
    H. Blow dry with oil-free nitrogen.
    I. Wrap individual parts with new, clean lint-free paper and organic aluminum foil, and store parts in a clean, contamination-free environment. Wrap a total of three layers of foil, to be removed at each progressive clean area at the KamLAND site.